UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,465	11/21/2003	Shan Chong Tan	70030582-1	4878

7590 10/27/2006

AGILENT TECHNOLOGIES, INC.
Intellectual Property Administration
Legal Department, DL 429
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER	
DINH, DUC Q	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/720,465	TAN ET AL.	
	Examiner	Art Unit	
	DUC Q. DINH	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Applicant's Amendment filed on August 10, 2006 Claims 1-11 are currently pending in the Application and being examined.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adan et al. (6,172,354), hereinafter Adan, in view of Jung et al. (US 2002/0139918 A1), hereinafter Jung.

In reference to claim 1, Adan discloses pointing device (mouse 40 in Fig. 2) comprising:

an illumination system (LED 104, lens 108) that illuminates a surface (116) over which said pointing device (40) moves, said illumination system (104 Fig. 2; light source 104 includes LED 118 and lens 120. Radiation emitted from an LED 118 is transmitted through lens 120 such that it passes through aperture 106 in housing 102 and impinges upon work surface 116; col. 4, lines 56-59) generating a light level determined by an illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 through current driver 114 and provide control signal to the light source 104 to adjust the intensity of the light source 104; col. 5, lines 52-54);

a camera system (108, 110; the light then reflects off of work surface 116 toward lens 108. Lens 108 collects the radiation reflected from surface 116 and directs it to image detector e.g., artificial retina 110; col. 4, lines 60-65) that records a plurality of images (col. 5, lines 15-20) of said illuminated surface (116)

a controller (112) that records first and second images taken by said camera at different times and determines a displacement indicative of the direction and distance said positioning device moved between said two different times (col. 6, lines 34-51; Fig. 4), said controller further generating said illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 and adjusts the current provided to source 104 through current driver 114; col. 5, lines 50-62)

Accordingly, Adan discloses everything except said illumination control signal depending on at least one of said images recorded by said camera system. Jung discloses a photo image detector using for a photo mouse (Fig. 3; paragraph [0004]) and method of controlling luminous intensity of light source (50) having a image processor (55) using at least one of the images recorded by the camera system (52) to generate a illumination control signal for controlling a luminous intensity of the illumination system (50; paragraph [0020] and claim 1 of Jung) as claimed.

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the controller of Adan to enable to use one of the image from the recorded images to generate a illumination control signal to control the luminous intensity of the illumination system as taught be Jung because it would enhance the quality of the image of an object and reduces a

consumption of a power supply by adjusting directly the luminosity of the light source [paragraph 0044 of Jung];

In reference to claim 4, Adan discloses said illumination system comprises an LED and variable current circuit (114 in Fig. 2) that adjusts the current flowing through said LED in response to said illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 and adjusts the current provided to source 104 through current driver 114; col. 5, lines 50-54).

In reference to claim 7, Adan discloses a method for determining the displacement (movement of mouse 40) of a pointing device (40) on a surface (116), said method comprising:

illuminating (by light source 104) said surface (116) with a light level determined by an illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 and adjusts the current provided to source 104 through current driver 114; col. 5, lines 50-6);

recording a plurality of images (identify different patterns and store patterns; Fig. 4) of said illuminated surface; and

comparing first and second images taken at different times to determine a displacement indicative of the direction and distance said positioning device moved between said two different times (based on the movement detected, controller 112 provides position information to the system; col. 6, lines 34-51; Fig. 4A).

Accordingly, Adan discloses everything except said illumination control signal depending on at least one of said recorded images. Jung discloses a photo image detector using for a photo mouse (Fig. 3; paragraph [0004]) and method of controlling luminous intensity of the

light source therefor having a image processor (55) using at least one of the images recorded by the camera (52) system to generate a illumination control signal for controlling a luminous intensity of the illumination system (50 Fig. 3; paragraph [0020]) as claimed.

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the controller of Adan to enable to use one of the image from the recorded images to generate a illumination control signal to control the luminous intensity of the illumination system as taught be Jung because it would enhance the quality of the image of an object and reduces a consumption of a power supply by adjusting directly the luminosity of the light source [paragraph 0044 and claim 1 of Jung];

In reference to claim 9, Adan discloses said illumination system comprises an LED and variable current circuit (114 in Fig. 2) that adjusts the current flowing through said LED in response to said illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 and adjusts the current provided to source 104 through current driver 114; col. 5, lines 50-54).

4. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adan in view of Jung as applied to claims 1, 4, 7 and 9 above and further in view of Norskog (U.S Patent No 6,585,158).

In reference to claim 2 and 8, Adan disclose the surface 116 is reflective (col. 4, lines 60-63) and Jung reflective surface (51 [0033]); however, the combination of Adan and Jung does not discloses said light level generated by said illumination system is inversely related to said reflectivity. Norskog discloses optical mouse having a light source 102 provides a source light

102 that illuminate reflective surface (104 in Fig. 1) and the light generated by said illumination system is inversely related to said reflectivity (in addition to turning the light on or off, the light source signal line 102 can also control the intensity of the light source. If the mouse were on bright white paper, the light intensity can be reduced as compared to the intensity it might be set at if it's used on paper that is less reflective; col. 4, lines 50-55).

It would have been obvious for one of ordinary skill in the art at the time of the invention to learn the teaching of Norskog, i.e. reducing the intensity of the light source (illumination system) on white surface (high reflective surface) and increase the light intensity on less reflective surface, in the combination of Adan and Jung because it would provide a light source that illuminates on demand to reduces a consumption of a power supply by adjusting the intensity of the light source as needed.

5. Claims 5 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Adan and Jung as applied to claims 1, 4, 7 and 9 above, and further in view of Fujiwara (U.S Patent No. 5,608,339).

In reference to claim 5 and 10, Adan discloses the variable current circuit 114 for the system. The combination of Adan and Jung does not disclose said variable current circuit comprises a current mirror for controlling the current in said LED. Fujiwara discloses current mirror (12 in Fig. 1) for controlling the current in an LED (1; Fig. 1; col. 4, line 33-43) .

It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize the current mirror circuit using for controlling current in LED in the combination of Adan and Jung as discloses by Fujiwara because it would provide operating current with high speed responsiveness (col. 11, lines 19-22).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adan and Jung as applied to claims 1, 4, 7 and 9 above, and further in view of Hedman (U.S Patent No 6,496,180).

In reference to claim 3, Adan discloses said illumination system comprises an LED and variable current circuit (114 in Fig. 2) that adjusts the current flowing through said LED in response to said illumination control signal (controller 112 intermittently senses the intensity of the radiation generated by source 104 and adjusts the current provided to source 104 through current driver 114; col. 5, lines 50-54). However, the combination of Adam and Jung does not disclose the illumination system comprises a laser diode for emitting light. Featherstone discloses a computer optical mouse having a light emitter element which may be an LED or laser diode (45; Fig. 3, 4; col. 2, lines 50-53 of Hedman).

It would have been obvious for one of ordinary skill in the art at the time of the invention to recognize the use of laser diode (or LED) as light emitting element for optical mouse is widely use as discloses by Hedman (45; Fig. 3, 4; col. 2, lines 50-53 of Hedman).

7. Claim 6 and 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adan and Jung as applied to claims 1, 4, 7 and 9 above, and further in view of Pranger et al. (U.S Patent No. 5,574,480), hereinafter Pranger.

In reference to claim 6, the combination of Adan and Jung does not disclose the illumination system has first setting for providing a first level of accuracy in said determined displacement and a second setting for providing a second level of accuracy that is greater than said first accuracy, said second illumination setting requiring more power than said first illuminating setting, said illumination setting being determined by a control signal supply by a

user of said pointing device. Pranger discloses a computer pointing device (mouse 18; Fig. 3) having an illumination system (LED 120) and controller 130 is able to provide discrete drive currents to LED 120 in order to provide different illumination levels. Controller13 select the middle current intensity level as the default level, the middle intensity is the normal operating level, i.e. first level of accuracy in determining the accuracy of the mouse displacement (col. 6, lines 32-36). After a prolonged use, the intensity of the LED 120 at the normal level is reduced, in order to ensure sufficient signal to noise ratios for the reflected light received by the detector, a user configures RPD to use the high level current level, i.e. high current level for second intensity setting requiring more power than normal current level for the middle intensity at normal current level and the second intensity is determined by a control signal supplied by a user (col. 6, lines 50-56).

It would have been obvious for one of ordinary skill in the art at the time of the invention to learn the teaching of Pranger, i.e.: setting different intensity level for the illumination system (LED 12) having a first setting at normal current level as default level and second intensity for the illumination system after prolonged of use with high current level, in the combination of Adan and Jung because it would provide a simple, efficient solution to a problem of configuring computer pointing devices, and to improve computer pointing device performance and reliability (col. 6, line 66-67, col. 7, lines 1-2 of Pranger).

In reference to claim 11, Pranger discloses a light level (intensity level of the LED 120) is also determined by a control signal (user reconfigures RPD 18 to use the high current level) that is input by a user of said pointing device (col. 6, lines 50-56 of Pranger and the rejection as applied to claim 6).

It would have been obvious for one of ordinary skill in the art at the time of the invention to learn the teaching of Pranger, i.e. providing user input signal to set the intensity level of the LED in the device of Adan and Jung because it would improve performance and reliability of the mouse after performance degradation of the LED (col. 6, lines 55-58 of Pranger).

Response to Arguments

8. Applicant's arguments filed August 10, 2006 have been fully considered but they are not persuasive. With respect to claim 1, 4, and 9, Applicant argues that image sensor of Jung does not form an image of the surface in question. First, as discussed above, the system of Adan discloses the camera system to record images on the illuminated surface but not discloses using the images to generating the illumination control signal from the images. Jung discloses the image sensor to detect the light quantity of the object and output photo signal, i.e., image of the surface (see abstract, [0041] and claim 1), the image processor receives the photo signal and output illumination control signal as discussed above. Furthermore, see Fig. 7 for the image formed by the photo image sensor of Jung. In addition, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., image sensor does not forms image of the surface in question) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to claim 6, Pranger discloses the illumination control level of accuracy by a user that the second illumination setting for providing level of accuracy is greater than the first level of accuracy as claimed (see col. 6, lines 50-60) during normal use, i.e. to determine

displacement (see abstract) in which the user reconfigures the RPD 18 to use with different current setting for accuracy as claimed.

With respect to other claimed see the rejection as applied to claims 1, 4, 7 and 9 above.

The rejection, therefore, is maintained.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q. DINH whose telephone number is (571) 272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUC Q DINH
Examiner
Art Unit 2629

/Duc Dinh/

DQD

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECH
2600